Technical Data **TD008003EN**

Effective September 2014
Supersedes August 2013

Shunt trip safety switch

Overview

This product family is the first safety switch line in the industry to integrate shunt trip technology, enhancing safety by providing a means to remotely open a safety switch electrically. The product's visible means of disconnect—providing the ability to verify blade disengagement from the stationary contact when the switch is in the OFF position—further enhances safety. When incorporating an emergency stop, safety interlock with other equipment, or similar means, the remote operation capability of the new shunt trip switch no longer requires personnel to manually open the switch with the handle. These new products can be configured to meet additional needs of safety applications in industrial and commercial environments—they can be signaled to electrically operate the trip mechanism and interrupt the flow of power when a defined electrical condition is detected via protection relay (for example, ground fault, undervoltage, blown fuse shutdown, and so on).

Product description

Eaton's exclusive line of shunt trip safety switches incorporates the tried-and-true heavy-duty safety switch with an integrated shunt trip module, providing capabilities and applications not previously possible with a standard safety switch.

- E-stop
- Safety interlocking
- Machinery OEM interlocking
- Remote opening (distant from switch)
- Cost-effective high-interrupt applications
- Ground fault ①
- Phase reversal / phase loss ①
- Blown fuse shutdown ①
- Undervoltage release ①
- DC—solar (ground fault ①, AFCI ①, fireman's switch ①②)

① Switch provides solenoid interface to accept wiring from Relay/CPT supplied by others.

② For specific DC disconnect information for PV applications, see product brochure BR00802002E, or contact the factory.

Standard features

- Heavy-duty safety switch design with integrated shunt trip module
- Visible means of disconnect—visible blade
- 30–800 A (240–600 Vac)
- 30–400 A (600–1000 Vdc)
- NEMA® Type 12/3R, 4 (painted steel) and 4X (stainless steel) enclosures
- Horsepower ratings same as standard safety switches
- Passes Class 1 ground fault testing (1200% opening)
- Maximum response time of 50 ms
- Switch arcing time less than 10 ms (AC)
- Class H fuse clips supplied as standard on fusible devices 30–600 A, Class L for 800 A; Class R, J, T fuse clips available

Optional features

Modifications available, such as viewing windows, pilot lights, and more. Call the Flex Center at 888-329-9272 for more information.

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Standards compliance

- UL® 98 file number E5239 (600 Vac maximum)
- CSA® C22.2 No. 4 file number LL69743 (600 Vac maximum)
- UL 98B—contact factory for specific file information (1000 Vdc maximum)
- UL 50
- NEMA KS-1

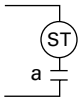

Table 1. Shunt Trip Coil Data

Application Ratings		Electrical Operating Ratings (Nominal Values)				
Coil Voltage	Frequency (Hz)	Minimum Operating Voltage (60 Hz)	Response Time (Sec) ①	Inrush VA rms at Minimum Operating Voltage (60 Hz) ②	Inrush VA rms at Nominal Operating Voltage (60 Hz)	Replacement Coil Catalog Number
24	50/60	13.2	0.05	130	550	**STCRK24VAC**
48	50/60	26.4	0.05	170	750	**STCRK48VAC**
120	50/60	66	0.05	260	1450	**STCRK120AC**
240	50/60	132	0.05	170	770	**STCRK240VAC**
480	50/60	264	0.05	160	820	**STCRK480VAC**
24	DC	18	0.05	15.3 ±5% ③	N/A	**STCRK24VDC**
48	DC	36.2	0.05	61.2 ±5% ③	N/A	**STCRK48VDC**
125	DC	82.5	0.05	309 ±5% ③	N/A	**STCRK125VDC**

① Time frame from the sending of the signal until the switch fully opens the circuit.

② Important: If there is an inadequate supply of current to trip switch, coil may burn up.

③ Ohms DC coil resistance.

Table 2. Endurance Testing

Endurance Test Cycles				
	Number of Cycles of Operation			Shunt Trip Endurance
Switch Ampacity	With Current	Without Current	Total	With Current ①
30	6000	4000	10,000	1500
60	6000	4000	10,000	1500
100	6000	4000	10,000	1500
200	6000	2000	8000	1500
400	1000	5000	6000	1000
600	1000	4000	5000	1000
800	500	3000	3500	1000

① Exceeds UL 98 requirements for shunt trip endurance, which specifies 10% of the number of cycles of operation with current.

Table 3. Contact Positions

		Handle Position		
		On	Tripped	Off/Reset
Contact	Type	Contact Position		
Auxiliary contact ①	SPDT (1NO/1NC)	NC closed	NC open	NC open
Auxiliary contact ①	DPDT (2NO/2NC)	NC closed	NC open	NC open
Alarm contact ②	SPDT (1NO/1NC)	NO open	NO closed	NO open

① Handle position contact.

② Trip indication contact.

Table 4. Terminal/Lug Wire Ranges

Ampere Rating	Minimum/Maximum	Wire Type
30	#14–#2	Cu/Al
60	#14–#2	Cu/Al
100	#14–1/0	Cu/Al
200	#6–300 kcmil	Cu/Al
400	(2) 1/0–300 kcmil or (1) 1/0–750 kcmil	Cu/Al
600	(1) #2–600 kcmil and (1) 1/0–750 kcmil	Cu/Al
800	(4) 1/0–750 kcmil	Cu/Al

Table 5. Short-Circuit Ratings ①

Ampere Rating	480V	600V
30	200 kAIC	200 kAIC
60	200 kAIC	200 kAIC
100	200 kAIC	200 kAIC
200	200 kAIC	100 kAIC
400	200 kAIC	100 kAIC
600	200 kAIC	100 kAIC
800	200 kAIC	200 kAIC

① SCCRs shown are for fusible devices (using Class R, J/L, or T fusing). Non-fusible values are based on combination rating with upstream device (see TD00801005E).

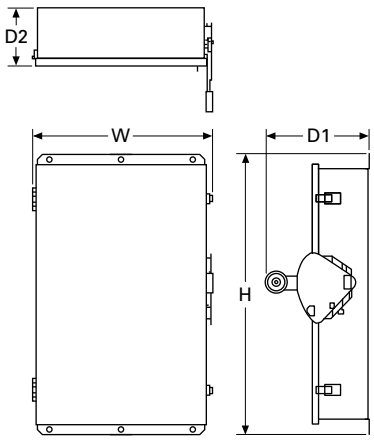

Table 6. Shunt Trip Safety Switch—240 Vac and 600 Vac—Dimensions and Ratings

			Enclosure Dimensions ①, Exterior in Inches (mm)			
Ampere Rating	**Fuse Class ②**	**Number of Poles**	**Height (H)**	**Width (W)**	**Depth (D1)**	**Depth (D2)**
Fusible						
30	H	2, 3, or 4 ③	21.58 (584.1)	11.58 (294.1)	11.43 (290.3)	5.58 (141.7)
60	H	2, 3, or 4 ③	21.58 (584.1)	11.58 (294.1)	11.43 (290.3)	5.58 (141.7)
100	H	2, 3, or 4 ③	24.95 (633.7)	14.89 (378.2)	11.51 (282.4)	5.58 (141.7)
200	H	2, 3, or 4	35.38 (898.7)	20.11 (510.8)	11.61 (294.9)	6.45 (163.8)
400	H	2, 3 or 4	57.47 (1459.7)	27.29 (693.2)	12.43 (315.7)	7.42 (188.5)
600	H	2, 3	62.97 (1599.4)	28.29 (718.6)	12.43 (315.7)	7.42 (188.5)
800	L	2, 3	71.72 (1821.7)	29.54 (750.3)	12.43 (315.7)	7.42 (188.5)
Non-Fusible						
30	—	2, 3, or 4 ③	21.58 (584.1)	11.58 (294.1)	11.43 (290.3)	5.58 (141.7)
60	—	2, 3, or 4 ③	21.58 (584.1)	11.58 (294.1)	11.43 (290.3)	5.58 (141.7)
100	—	2, 3, or 4 ③	24.95 (633.7)	14.89 (378.2)	11.51 (282.4)	5.58 (141.7)
200	—	2, 3, or 4	35.38 (898.7)	20.11 (510.8)	11.61 (294.9)	6.45 (163.8)
400	—	2, 3, or 4	57.47 (1459.7)	27.29 (693.2)	12.43 (315.7)	7.42 (188.5)
600	—	2, 3	62.97 (1599.4)	28.29 (718.6)	12.43 (315.7)	7.42 (188.5)
800	—	2, 3	71.72 (1821.7)	29.54 (750.3)	12.43 (315.7)	7.42 (188.5)

① Accurate for all enclosure NEMA type ratings—12/3R, 4, 4X stainless steel.

② Class H fuse clips supplied as standard on fusible devices 30–600 A, Class L for 800 A; Class R, J, T fuse clips available.

③ Four-pole devices are wider than dimension for 30, 60, and 100 A devices. Consult factory for details.

Table 7. Catalog Numbering System ①

STS 3 6 4 U D 3 2

Switch Series
STS = Shunt trip switch (UL)
CTS = Shunt trip switch (CSA)

Number of Poles
2 = Two-pole
3 = Three-pole
4 = Four-pole

Maximum System Voltage
2 = 240 Vac
6 = 600 Vac

Ampacity
1 = 30 A
2 = 60 A
3 = 100 A
4 = 200 A
5 = 400 A
6 = 600 A
7 = 800 A

Protection
F = Fusible without neutral
U = Non-fusible
N = Fusible with neutral

NEMA Enclosure Rating
D = NEMA 12/3R
P = NEMA 4 (painted steel)
W = NEMA 4X, stainless 304
X = NEMA 4X, stainless 316

Shunt Trip Coil Voltage
1 = 24 Vac
2 = 48 Vac
3 = 120 Vac
4 = 240 Vac
5 = 480 Vac
6 = 24 Vdc
7 = 48 Vdc
8 = 125 Vdc

Accessories/Options
Blank = No accessories
CL = Copper lugs
CP = Control pole
J = Factory converted provision for Class J fusing
N = Factory installed neutral for non-fused switch
T = Factory converted provisions for Class T fusing
W = Viewing window within door

Auxiliary Switch
Blank = No auxiliary switches
1 = 1NO/NC alarm switch only
2 = 1NO/1NC auxiliary contact only
3 = 2NO/2NC auxiliary contacts only
4 = 1NO/1NC auxiliary contact and 1NO/NC alarm switch
5 = 2NO/2NC auxiliary contacts and 1NO/NC alarm switch

① For specific DC disconnect information for PV applications, contact the factory.

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

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